Category 8 Word Problem

1. **Water has been pouring into a tank for $12\frac{1}{2}$ minutes at the constant rate of 1 gallon per second. If the tank was initially empty and is now $\frac{1}{3}$ full, what is the total capacity of the tank, in gallons?**

answer

(A) 375
(B) 1,125
(C) 1,500
(D) 2,160
(E) 2,250

2. **During a sale, Pam paid the regular price for one quart of oil and paid $0.01 for a second quart. If she paid a total of $1.20 for the two quarts, the amount paid for the second quart was what fraction of the amount paid for the first quart?**

answer

(A) $\frac{1}{118}$ **(B)** $\frac{1}{119}$ **(C)** $\frac{1}{120}$ **(D)** $\frac{1}{121}$ **(E)** $\frac{1}{122}$

3. **A carpenter purchases a hammer costing $8.03, a bag of nails costing $5.16, and a tape measure costing $2.81 with a twenty-dollar bill. How much change does the carpenter receive if a sales tax of 5 percent is charged on the entire purchase?**

answer

(A) $3.20
(B) $3.29
(C) $3.80
(D) $4.00
(E) $4.80

4. A certain property doubled in value from 1950 to 1960 and tripled in value from 1960 to 1980. The value of the property in 1980 was how many times the value in 1950?

answer

(A) 3

(B) 5

(C) 6

(D) 8

(E) 9

5. Of the final grades received by the students in a certain math course, $\frac{1}{5}$ are A's, $\frac{1}{4}$ are B's, $\frac{1}{2}$ are C's and the remaining 10 grades are D's. What is the number of students in the course?

answer

(A) 80

(B) 110

(C) 160

(D) 200

(E) 400

6. If 50 tomatoes weigh a total of 30 pounds and cost 35 cents per pound, what is the cost per tomato?

answer

(A) 17 cents

(B) 21 cents

(C) 24 cents

(D) 28 cents

(E) 35 cents

7. On a new job Alice earned $198 the first week and $220 the second week. If she worked 4 more hours the second week than the first week and was paid at the same hourly rate, how much did she earn per hour?

answer

(A) $4.00
(B) $4.50
(C) $5.00
(D) $5.50
(E) $6.00

8. If a store purchased 6 dozen items at a cost of $1.80 per dozen and later sold them all for $0.20 apiece, what was the store's profit on these items?

answer

(A) $2.16
(B) $2.40
(C) $2.84
(D) $3.20
(E) $3.60

9. A mail clerk put 1 or 2 stamps on each of 20 envelopes, using a total of 36 stamps. On how many of the envelopes did the clerk put 2 stamps?

answer

(A) 4
(B) 6
(C) 8
(D) 12
(E) 16

10. In 1984 the production costs of Company X totaled \$719,000 and nonproduction costs totaled \$15,000. In 1985 robots were introduced, and production costs dropped to \$600,000, but nonproduction costs rose to \$65,000 for the year. What was the decrease in total costs for Company X from 1984 to 1985?

answer

(A) \$50,000
(B) \$69,000
(C) \$119,000
(D) \$134,000
(E) \$169,000

11. In traveling from a dormitory to a certain city, a student went $\frac{1}{5}$ of the way by foot, $\frac{2}{3}$ of the way by bus, and the remaining 8 kilometers by car. What is the distance, in kilometers, from the dormitory to the city?

answer

(A) 30
(B) 45
(C) 60
(D) 90
(E) 120

12. A grocer purchased a quantity of bananas at 3 pounds for \$0.50 and sold the entire quantity at 4 pounds for \$1.00. How many pounds did the grocer purchase if the profit from selling the bananas was \$10.00?

answer

(A) 40
(B) 60
(C) 90
(D) 120
(E) 240

13. A man who died left an estate valued at $111,000. His will stipulated that his estate was to be distributed so that each of his three children received from the estate and his previous gifts, combined, the same total amount. If he had previously given his oldest child $15,000, his middle child $10,000, and his youngest $2,000, how much did the youngest child receive from the estate?

answer

(A) $50,000
(B) $48,000
(C) $46,000
(D) $44,000
(E) $39,000

14. On a 3-day fishing trip, 4 adults consumed food costing $60. For the same food costs per person per day, what would be the cost of food consumed by 7 adults during a 5-day fishing trip?

answer

(A) $300
(B) $175
(C) $105
(D) $100
(E) $84

15. Joe went on a diet 6 months ago when he weighed 222 pounds. If he now weighs 198 pounds and continues to lose at the same average monthly rate, in approximately how many months will he weigh 180 pounds?

answer

(A) 3
(B) 3.5
(C) 4
(D) 4.5
(E) 5

16. **Mr. Hernandez, who was a resident of State X for only 8 months last year, had a taxable income of $22,500 for the year. If the state tax rate were 4 percent of the year's taxable income prorated for the proportion of the year during which the taxpayer was a resident, what would be the amount of Mr. Hernandez's State X tax for last year?**

answer

(A) **$900**

(B) **$720**

(C) **$600**

(D) **$300**

(E) **$60**

17. **If a 50-pound food package consists of individual 4-ounce packets, how many individual packets are contained in 4 tons of 50-pound packages? (Assume that all weights given exclude the weight of packaging material. 1 ton = 2,000 pounds; 1 pound = 16 ounces)**

answer

(A) **32,000**

(B) **8,000**

(C) **800**

(D) **200**

(E) **160**

18. **The cost of sending a package is 30 cents per ounce in addition to a basic fee of 5 dollars. If integer x represents the weight in ounces of a certain package, which of the following represents the cost, in dollars, of sending the package?**

answer

(A) $5x + 0.30$

(B) $(5 + x)0.30$

(C) $5 - 0.30x$

(D) $0.30x + 5$

(E) $0.70x + 5$

19. An empty oil tanker was filled with oil at a uniform rate in t hours. What proportion of the tanker was filled during the first x hours if $x < t$?

answer

(A) $\frac{x}{t}$ **(B)** $\frac{t}{x}$ **(C)** $\frac{x}{t-x}$ **(D)** $\frac{t-x}{t}$ **(E)** $\frac{t-x}{x}$

20. If a basketball team scores an average (arithmetic mean) of x points per game for n games and then scores y points in its next game, what is the team's average score for the $n+1$ games?

answer

(A) $\frac{nx+y}{n+1}$

(B) $x+\frac{y}{n+1}$

(C) $x+\frac{y}{n}$

(D) $\frac{n(x+y)}{n+1}$

(E) $\frac{x+ny}{n+1}$

21. If a train travels at a speed of k meters per second, how many <u>kilometers</u> will it travel in t <u>minutes</u>? (1 kilometer = 1,000 meters)

answer

(A) $\frac{60kt}{1{,}000}$

(B) $\frac{60kt}{100}$

(C) $\frac{1{,}000kt}{60}$

(D) $6.000kt$

(E) $60{,}000kt$

< *High Level* 문제 >

22. Mason and Kathy, who both work in the evening wish to arrange for an evening off together. Each evening that Mason is off is followed by 3 evenings that he is a work, and each evening that Kathy is off is followed by 5 evenings that she is at work. If Mason will be off this evening, and Kathy will be off tomorrow evening, how many evenings must pass before they have an evening off together?

answer

(A) 10
(B) 12
(C) 24
(D) 28
(E) So long as they continue this working pattern, they will never have the same evening off.

23. On a certain 10-question test, each question after the first question is worth 2 points more than the previous question. If the greatest number of points that can be scored on the test is 100, how many points is the eighth question worth?

answer

(A) 9
(B) 14
(C) 15
(D) 19
(E) 33

24. A certain car dealership sells only full-size and mid-size cars. One of its sales representatives receives an annual salary of $15,000. He also receives a commission of $800 for each full-size car he sells and $500 for each midsize car he sells. What is the least number of cars he must sell in a year to receive total annual earnings of exactly $25,000?

answer

(A) 7
(B) 12
(C) 13
(D) 14
(E) 17

25. **A school supply store sells only one kind of desk and one kind of chair, at a uniform cost per desk or per chair. If the total cost of 3 desks and 1 chair is twice that of 1 desk and 3 chairs then the total cost of 4 desks and 1 chair is how many times that of 1 desk and 4 chairs?**

answer

(A) 5 **(B)** 3 **(C)** $\frac{8}{3}$ **(D)** $\frac{5}{2}$ **(E)** $\frac{7}{3}$

26. **A merchant paid \$300 for a shipment of x identical calculators. The merchant used 2 of the calculators as demonstrators and sold each of the others for \$5 more than the average (arithmetic mean) cost of the x calculators. If the total revenue from the sale of the calculators was \$120 more than the cost of the shipment, how many calculators were in the shipment?**

answer

(A) 24

(B) 25

(C) 26

(D) 28

(E) 30

27. **A manufacturer can save x dollars per unit in production costs by overproducing in certain seasons. If storage costs for the excess are y dollars per unit per day $(x > y)$, which of the following expresses the maximum number of days that n excess units can be stored before the storage costs exceed the savings on the excess units?**

answer

(A) $x - y$

(B) $(x - y)n$

(C) $\frac{x}{y}$

(D) $\frac{xn}{y}$

(E) $\frac{x}{yn}$

28. A certain disability plan pays monthly benefits of 60 percent of the first \$2,000 of monthly salary plus 40 percent of any portion in excess of \$2,000—the total monthly benefit not to exceed \$2,500. What is the smallest monthly salary that will yield the maximum monthly benefit under this plan?

answer

(A) \$5,750

(B) \$5,250

(C) \$4,500

(D) \$3,250

(E) \$2,200

29. One-fifth of the light switches produced by a certain factory are defective. Four-fifths of the defective switches are rejected and $\frac{1}{20}$ of the nondefective switches are rejected by mistake. If all the switches not rejected are sold, what percent of the switches sold by the factory are defective?

answer

(A) 4%

(B) 5%

(C) 6.25%

(D) 11%

(E) 16%

30. In Company X, 30 percent of the employees live over ten miles from work and 60 percent of the employees who live over ten miles from work are in car pools. If 40 percent of the employees of Company X are in car pools, what percent of the employees of Company X live ten miles or less from work and are in car pools?

answer

(A) 12%

(B) 20%

(C) 22%

(D) 28%

(E) 32%

31. A garment order consists of jackets costing $36 each and shirts costing $26 each. If the total cost of the order is $1,200, and if the average (arithmetic mean) cost per garment is $30, how many more shirts than jackets are in the order?

answer

(A) 32
(B) 22
(C) 18
(D) 13
(E) 8

32. The front wheels of a toy truck are 4 inches in circumference. The back wheels are 7 inches in circumference. If the truck travels in a straight line without slippage, how many inches will the truck have traveled when the front wheels have made 12 more revolutions than the back wheels?

answer

(A) 112
(B) 64
(C) 48
(D) 36
(E) 28

33. A club sold an average (arithmetic mean) of 92 raffle tickets per member. Among the female members, the average number sold was 84, and among the male members, the average number sold was 96. What was the ratio of the number of male members to the number of female members in the club?

answer

(A) 1 : 1
(B) 1 : 2
(C) 1 : 3
(D) 2 : 1
(E) 3 : 1

34. A team won 40 percent of the 15 games it has already played. If the team were to win 75 percent of its remaining games, it will have won 60 percent of all its games. How many remaining games are there?

answer

(A) 12

(B) 20

(C) 24

(D) 30

(E) 45

35. In a quality control process it has been determined that all of the engines that fail inspection are faulty, but approximately $\frac{1}{6}$ of the faulty engines pass inspection. If, in a group of 1,000 engines, 100 fail inspection, approximately how many faulty engines pass inspection?

answer

(A) 16

(B) 20

(C) 50

(D) 70

(E) 120

36. If an organization were to sell n tickets for a theater production, the total revenue from ticket sales would be 20 percent greater than the total costs of the production. If the organization actually sold all but 5 percent of the n tickets, the total revenue from ticket sales was what percent greater than the total costs of the production?

answer

(A) 4%

(B) 10%

(C) 14%

(D) 15%

(E) 18%

37. Jeff drove to work from his home averaging 40 miles per hour, and was 12 minutes late. The next day he left home for work at the same time, took the same route, averaging 48 miles per hour, and was 7 minutes late. How far in miles is it from Jeff's home to his work?

answer

(A) 20.0

(B) 24.5

(C) 30.0

(D) 37.5

(E) 40.0

38. If a motorist had driven 1 hour longer on a certain day and at an average rate of 5 miles per hour faster, he would have covered 70 more miles than he actually did. How many more miles would he have covered than he actually did if he had driven 2 hours longer and at an average rate of 10 miles per hour faster on that day?

answer

(A) 100

(B) 120

(C) 140

(D) 150

(E) 160

39. When a certain stretch of highway was rebuilt and straightened, the distance along the stretch was decreased by 20 percent and the speed limit was increased by 25 percent. By what percent was the driving time along this stretch reduced for a person who always drives at the speed limit?

answer

(A) 16%

(B) 36%

(C) $37\frac{1}{2}\%$

(D) 45%

(E) $56\frac{1}{4}\%$

40. Solution Y is 30 percent liquid X and 70 percent water. If 2 kilograms of water evaporate from 8 kilograms of solution Y and 2 kilograms of solution Y are added to the remaining 6 kilograms of liquid, what percent of this new solution is liquid X?

answer

(A) 30%

(B) $33\frac{1}{3}\%$

(C) $37\frac{1}{2}\%$

(D) 40%

(E) 50%

41. How many gallons of water must be mixed with 1 gallon of a 15-percent salt solution to obtain a 10-percent salt solution?

answer

(A) 0.50

(B) 0.67

(C) 1.00

(D) 1.50

(E) 2.00

42. The seating chart of an airplane shown 30 rows of seats. Each row has 3 seats on each side of the center aisle, and one of the seats on each side is a window seat. The view from the window seats in 5 of the rows is obscured by the wings of the airplane. If the first person to be assigned a seat is assigned a window seat and the window seat is assigned randomly, what is the probability that the person will get a seat with an unobscured view?

answer

(A) $\frac{1}{6}$

(B) $\frac{1}{3}$

(C) $\frac{2}{3}$

(D) $\frac{5}{6}$

(E) $\frac{17}{18}$

43. One week a certain truck rental lot had a total of 20 trucks, all of which were on the lot Monday morning. If 50 percent of the trucks that were rented out during the week were returned to the lot on or before Saturday morning of that week, and if there were at least 12 trucks on the lot that Saturday morning, what is the greatest number of different trucks that could have been rented out during the week?

answer

(A) 18
(B) 16
(C) 12
(D) 8
(E) 4

44. A car traveled 462 miles per tankful of gasoline on the highway and 336 miles per tankful of gasoline in the city. If the car traveled 6 fewer miles per gallon in the city than on the highway, how many miles per gallon did the car travel in the city?

answer

(A) 14
(B) 16
(C) 21
(D) 22
(E) 27

45. On a 20-mile course Pat bicycled at an average rate of 30 miles per hour for the first 12 minutes and, without a break, ran the rest of the distance at an average rate of 8 miles per hour. How many minutes did Pat take to cover the entire course?

answer

(A) 75
(B) 105
(C) 117
(D) 150
(E) 162

46. An investor bought n shares of Company X stock at \$75 per share. She sold 60 percent of the shares for \$120 per share and the rest at a later date for \$70 per share. If her gross profit on the sale of the n shares of stock was \$7,500, how many shares did she buy?

answer

(A) 375
(B) 300
(C) 100
(D) 95
(E) 75

47. In 1982 a certain company had losses of \$10,000 per month. In the first three months of 1983, this company had gains of \$4,000 per month. On the average, what would the company need to gain per month in the remainder of 1983 in order to break even over this two-year period?

answer

(A) \$9,000
(B) \$10,800
(C) \$12,000
(D) \$13,500
(E) \$18,000

48. An author received \$0.80 in royalties for each of the first 100,000 copies of her book sold, and \$0.60 in royalties for each additional copy sold. If she received a total of \$260,000 in royalties, how many copies of her book were sold?

answer

(A) 130,000
(B) 300,000
(C) 380,000
(D) 400,000
(E) 420,000

49. For each hour worked in excess of 40 hours per week, a mechanic is paid $1\frac{1}{2}$ times her regular rate of $12 per hour. Her gross pay for a week in which she works 52 hours is equal to her pay at the regular rate for how many hours?

answer

(A) 58

(B) 64

(C) 66

(D) 70

(E) 78

50. Fifty percent of the subscribers to newspaper X are corporate managers and of these, 30 percent are in the financial field. If 40 percent of the subscribers who are corporate managers in the financial field are money managers, how many of the newspaper's 25,000 subscribers are corporate money managers in the financial field?

answer

(A) 1,500

(B) 3,000

(C) 3,750

(D) 7,500

(E) 8,750

51. Reggie had to type 90 letters. During the first day he typed $\frac{1}{3}$ of the letters, and during the second day he typed $\frac{2}{5}$ of the remaining letters. How many letters were still untyped at the end of the second day?

answer

(A) 36

(B) 32

(C) 24

(D) 18

(E) 12

52. One karat signifies that $\frac{1}{24}$ of an alloy is pure gold. If a certain ring is 14-karat gold, approximately what percent of the alloy composing the ring is not gold?

answer

(A) 14% **(B)** 24% **(C)** 42% **(D)** 55% **(E)** 58%

53. At a certain pizzeria, $\frac{1}{8}$ of the pizzas sold in one week were mushroom and $\frac{1}{3}$ of the remaining pizzas sold were pepperoni. If n of the pizzas sold were pepperoni, how many were mushroom?

answer

(A) $\frac{3}{8}n$

(B) $\frac{3}{7}n$

(C) $\frac{7}{16}n$

(D) $\frac{7}{8}n$

(E) $3n$

54. Beth received $\frac{3}{10}$ of the votes cast in a certain election. What fraction of the other votes cast would she have needed in order to have received $\frac{1}{2}$ of the votes cast?

answer

(A) $\frac{1}{5}$

(B) $\frac{2}{7}$

(C) $\frac{3}{10}$

(D) $\frac{7}{20}$

(E) $\frac{1}{2}$

55. From January 1, 1980, to January 1, 1984, the number of employees of Company X declined by 700 per year. If the number of employees on January 1, 1984, was 80 percent of the number on January 1, 1980, how many employees did the company have on January 1, 1984?

answer

(A) 2,800
(B) 3,500
(C) 11,200
(D) 16,800
(E) 17,500

56. Both marble tiles and terra-cotta tiles are available in squares with 12-centimeter sides, but marble tiles cost x cents more per tile than terra-cotta tiles. How much more would it cost, in cents, to tile a rectangular floor 240 centimeters by 120 centimeters with marble tiles than with terra-cotta tiles?

answer

(A) $200x$
(B) $360x$
(C) $720x$
(D) $2{,}400x$
(E) $28{,}800 - 144x$

57. If 6 machines ran at the same constant rate, they can complete a certain job in 8 hours. If only 5 of these machines run at this rate, how many more minutes will be required to complete the same job?

answer

(A) 38
(B) 72
(C) 80
(D) 90
(E) 96

58. An inlet pipe can fill an empty pool with water in 3 hours, and the pool's outlet pipe can empty a full pool in 4 hours. The water flows at constant rates through both pipes regardless of the water level in the pool. If both pipes were inadvertently left open, what fraction of the pool would be filled exactly 2 hours after water began to flow into the empty pool?

answer

(A) $\frac{1}{12}$ **(B)** $\frac{1}{6}$ **(C)** $\frac{1}{4}$ **(D)** $\frac{1}{3}$ **(E)** $\frac{1}{2}$

59. Working alone, R can complete a certain kind of job in 9 hours. R and S, working together at their respective rates, can complete one of these jobs in 6 hours. In how many hours can S, working alone, complete one of these jobs?

answer

(A) 18

(B) 12

(C) 9

(D) 6

(E) 3

60. Machines $A, B,$ and C working together, but independently, at their respective constant rates can do a certain job in $1\frac{1}{2}$ hours. If A alone can do the job in 5 hours, and B alone can do the job in 3 hours, in how many hours can C alone do the job?

answer

(A) $1\frac{1}{3}$

(B) $2\frac{1}{7}$

(C) 3

(D) 5

(E) $7\frac{1}{2}$

61. Bell X rings once every 12 minutes, bell Y once every 14 minutes, and bell Z once every 15 minutes. If, during a given day, the three bells ring at exactly the same instant, how many minutes will elapse before the three bells next ring simultaneously?

answer

(A) 60
(B) 210
(C) 420
(D) 840
(E) 2,520

62. How many bits of computer memory will be required to store the integer x, were $x = -\sqrt{810,000}$, if each digit requires 4 bits of memory and the sign of x requires 1 bit?

answer

(A) 25
(B) 24
(C) 17
(D) 13
(E) 12

63. Of the science books in a certain supply room, 50 are on botany, 65 are on zoology, 90 are on physics, 50 are on geology, and 110 are on chemistry. If science books are removed randomly from the supply room, how many must be removed to ensure that 80 of the books removed are on the same science?

answer

(A) 81
(B) 159
(C) 166
(D) 285
(E) 324

64. In a certain game, a player can accumulate points only by scoring either an X, which counts 3 points, or a Y, which counts 2 points. If a player scored 24 points in the game and t points were made by scoring X's how many different values could t have?

answer

(A) Four

(B) Five

(C) Six

(D) Seven

(E) Eight

65. An apartment building has 9 floors with $2n$ apartments per floor. If $\frac{1}{3}$ of the apartments are to have walls removed to form, in each case, one bigger apartment from two smaller ones, how many apartments will there be after the remodeling?

answer

(A) $3n$

(B) $5n$

(C) $6n$

(D) $12n$

(E) $415n$

66. One-fourth of a solution that was 10 percent sugar by weight was replaced by a second solution, resulting in a solution that was 16 percent sugar by weight. The second solution was what percent sugar by weight?

answer

(A) 34%

(B) 24%

(C) 22%

(D) 18%

(E) 8.5%

STOP

수학해설 *Category 8-1 Word Problems*

1. Water has been pouring into a tank for $12\frac{1}{2}$ minutes at the constant rate of 1 gallon per second. If the tank was initially empty and is now $\frac{1}{3}$ full, what is the total capacity of the tank, in gallons?

(A) 375 (B) 1,125 (C) 1,500 (D) 2,160 (E) 2,250

12(1/2)minutes는 12분 30초, 다시 second로 고치면 12×60 + 30 = 750 seconds. 위에서 per second 당 1 gallon의 속도로 증가한다고 했으니 750초 뒤에는 750 gallon이 증가했죠. 이 양은 전체 탱크의 capacity의 1/3을 채운다. 따라서 $\frac{capacity}{3} = 750$

▣ 정답은 (E)

2. During a sale, Pam paid the regular price for one quart of oil and paid $0.01 for a second quart. If she paid a total of $1.20 for the two quarts, the amount paid for the second quart was what fraction of the amount paid for the first quart?

(A) $\frac{1}{118}$ **(B)** $\frac{1}{119}$ **(C)** $\frac{1}{120}$ **(D)** $\frac{1}{121}$ **(E)** $\frac{1}{122}$

$\frac{\$0.01}{\$1.19\,(1.20 - 0.01)} = \frac{1}{119}$ Tip : fractions 유형의 문제를 풀 때 주의할 점은 분모와 분자를 혼동하지 말아야 한다는 점입니다. 여기서는 the amount paid for the first quart의 what fraction을 묻는 것이니까 이것이 분모가 되어야 합니다.

▣ 정답은 (B)

*Tips: Fractions*의 정의

$$\frac{d}{n} = \frac{numerator}{denominator} = \frac{part}{whole} = \frac{dividend}{divisor}$$

3. A carpenter purchases a hammer costing $8.03, a bag of nails costing $5.16, and a tape measure costing $2.81 with a twenty-dollar bill. How much change does the carpenter receive if a sales tax of 5 percent is charged on the entire purchase?

(A) $3.20
(B) $3.29
(C) $3.80
(D) $4.00
(E) $4.80

$ 20 – 1.05($8.03 + $5.16 + $2.81) = $3.20 <전체 물건 값에 105%을 곱하면 되죠>

정답은 (A)

4. A certain property doubled in value from 1950 to 1960 and tripled in value from 1960 to 1980. The value of the property in 1980 was how many times the value in 1950?

(A) 3
(B) 5
(C) 6
(D) 8
(E) 9

1950 —2배→ 1960 —3배→ 1980 , 따라서 1980년은 1950년을 기준으로 6배가 증가했죠.

정답은 (C)

5. Of the final grades received by the students in a certain math course, $\frac{1}{5}$ are A's, $\frac{1}{4}$ are B's, $\frac{1}{2}$ are C's and the remaining 10 grades are D's. What is the number of students in the course?

(A) 80 (B) 110 (C) 160 (D) 200 (E) 400

1– (1/5+1/4+1/2) = $\frac{1}{20}$ (the number of students in the course) = 10 명

따라서 전체 학생수는 200명입니다.

정답은 (D)

6. If 50 tomatoes weigh a total of 30 pounds and cost 35 cents per pound, what is the cost per tomato?

(A) 17 cents
(B) 21 cents
(C) 24 cents
(D) 28 cents
(E) 35 cents

토마토 50개의 무게가 30 pounds이며 1 pound당 가격은 35cent일 때 토마토 개당 가격을 물어 보고 있습니다.
수식: (30 pounds × 35(cents)) / 50 (개) = 21 cents
⊞ 정답은 (B)

7. On a new job Alice earned $198 the first week and $220 the second week. If she worked 4 more hours the second week than the first week and was paid at the same hourly rate, how much did she earn per hour?

(A) $4.00 (B) $4.50 (C) $5.00 (D) $5.50 (E) $6.00

시간당 급료가 일정한 조건 하에서 첫 주는 $198을 두 번째 주에는 $220을 벌었으며, 두 번째 주에는 4시간을 더 일했다고 합니다. 시간당 급료를 알고 싶으면 두 주간의 급료의 차이를 4시간으로 나누면 되겠군요.

수식) 22(dollars) / 4 (hours) = 5. 5 (dollar/hour)

⊞ 답은 (D)입니다.

8. If a store purchased 6 dozen items at a cost of $1.80 per dozen and later sold them all for $0.20 apiece, what was the store' s profit on these items?

(A) $2.16 (B) $2.40 (C) $2.84 (D) $3.20 (E) $3.60

12개에 $1.8하는 물건을 72개 구입(6 dozen items)하고 이를 개당 $0.20에 판매할 때의 수익을 물어 보고 있습니다.
개당 구입가격을 먼저 구하고 (1.8 (dollars) / 12(개) = 0.15) 판매가격에서 구입가격을 뺀 금액에(0.2(dollar) – 0.15(dollar) = 0.05(dollar)) 수량을 곱하여 주면 되겠습니다.
⊞ 답은 (E)입니다.

9. A mail clerk put 1 or 2 stamps on each of 20 envelopes, using a total of 36 stamps. On how many of the envelopes did the clerk put 2 stamps?

(A) 4 (B) 6 (C) 8 (D) 12 (E) 16

20개의 봉투에 한 개 또는 두 개의 우표를 부치는데 36개의 우표를 사용했다. 두 개의 우표를 부친 봉투는 몇 개인가를 묻고 있습니다.
기본적으로 20개의 봉투에 한 개씩 우표를 부치고도 16개를 더 사용했으므로 두 개의 우표를 부친 봉투는 16개입니다.

▣ 정답은 (E)

10. In 1984 the production costs of Company X totaled $719,000 and nonproduction costs totaled $15,000. In 1985 robots were introduced, and production costs dropped to $600,000, but nonproduction costs rose to $65,000 for the year. What was the decrease in total costs for Company X from 1984 to 1985?

(A) $50,000 (B) $69,000 (C) $119,000 (D) $134,000 (E) $169,000

production cost는 $719,000, nonproduction cost는 $15,000였는데 작업공정에 로보트가 도입된 후 production cost는 $600,000으로 감소하고 nonproduction cost $65,000로 변했을 때 비용전체 감소를 구하라는 문제 입니다. 즉 $719,000 ⇨ $600,000으로 감소 : $15,000 ⇨ 65,000증가
두 값을 합치면 $734,000 ⇨ $665,000 감소됩니다. 이 두 값의 차이가 정답이네요.

▣ 정답은 (B)

11. In traveling from a dormitory to a certain city, a student went $\frac{1}{5}$ of the way by foot, $\frac{2}{3}$ of the way by bus, and the remaining 8 kilometers by car. What is the distance, in kilometers, from the dormitory to the city?

(A) 30 (B) 45 (C) 60 (D) 90 (E) 120

1/5를 도보로 2/3는 버스로 그리고 나머지 8Km는 자동차를 이용한다고 할 때 기숙사에서 도시까지의 거리를 물어 보고 있다.

전체거리를 D라 가정하고 풀면 : D – (1/5D+2/3D)= 8 (Km)

▣ 정답은 (C)

12. A grocer purchased a quantity of bananas at 3 pounds for $0.50 and sold the entire quantity at 4 pounds for $1.00. How many pounds did the grocer purchase if the profit from selling the bananas was $10.00?

(A) 40 (B) 60 (C) 90 (D) 120 (E) 240

3 pounds 의 바나나를 $0.5에 구입하여 4 pounds의 바나나를 $1에 판매할 때 얼마만큼의 바나나를 판매해야 $10.00의 수익을 거둘 수 있는지를 물어보고 있다.
파운드 당 구입가격 및 판매가격을 구하여 $10을 나누어도 되겠지만, 답을 빨리 구하기 위해서는 3과 4의 최소공배수인 12를 구하여 풀면 빠르게 풀 수 있다.
구입시 : 12 pounds $ 2
판매시 : 12 pounds $ 3
그러므로 12 pound를 판매할 때 마다 $1만큼 수익을 올린다.
12 pounds: $1 = x : $10

정답은 (D)

13. A man who died left an estate valued at $111,000. His will stipulated that his estate was to be distributed so that each of his three children received from the estate and his previous gifts, combined, the same total amount. If he had previously given his oldest child $15,000, his middle child $10,000, and his youngest $2,000, how much did the youngest child receive from the estate?

(A) $50,000
(B) $48,000
(C) $46,000
(D) $44,000
(E) $39,000

$111,000의 재산을 세 아들들에게 나누어줄 때, 큰 아들이 $15,000, 둘째가 $10,000, 그리고 막내가 $2,000을 그 전에 받았습니다. $111,000의 나누되 그 전에 받은 돈과 새로 받은 돈을 합쳐 모두 똑같은 금액을 받았다면, $111,000 중에서 막내 아들의 몫이 얼마인가를 구하는 문제네요.
$111,000+$15,000+$10,000+$2,000 ÷3 = $46,000(각각이 받은 총 액수)
막내는 그 전에 $2,000을 받았으므로 $46,000 - $2,000 = $44,000을 estate에서 받았습니다.

정답은 (D)

14. On a 3-day fishing trip, 4 adults consumed food costing $60. For the same food costs per person per day, what would be the cost of food consumed by 7 adults during a 5-day fishing trip?

(A) $300 (B) $175 (C) $105 (D) $100 (E) $84

4명이 3일 동안 $60을 food에 지출했다면 1명이 하루동안 음식에 쓰는 경비는 $\frac{\$60}{3-day \times 4adults} = \$5$, 7명이 5일 동안 음식에 지출하는 돈은 $5×7 adults ×5-day = $175

정답은 (B)

15. Joe went on a diet 6 months ago when he weighed 222 pounds. If he now weighs 198 pounds and continues to lose at the same average monthly rate, in approximately how many months will he weigh 180 pounds?

(A) 3

(B) 3.5

(C) 4

(D) 4.5

(E) 5

6 months: 24 pounds (222 pounds – 198 pounds) = X : 18 pounds(198 pounds – 180 pounds)

X = 4.5

정답은 (D)

16. Mr. Hernandez, who was a resident of State X for only 8 months last year, had a taxable income of $22,500 for the year. If the state tax rate were 4 percent of the year's taxable income prorated for the proportion of the year during which the taxpayer was a resident, what would be the amount of Mr. Hernandez's State X tax for last year?

(A) $900 (B) $720 (C) $600 (D) $300 (E) $60

$ 22,500 × 0.04 × (8/12) = $ 600;

문제에서 빨간 줄이 있는 부분의 의미는 세금납세자가 일년 중 resident로서 그 주에서 산 기간만큼 세금을 계산한다는 의미죠. 일년 중 8개월을 어떤 주에서 살았다면 전체 세금의 $\frac{8}{12}$ 만큼만 납세하여 된다는 뜻입니다.

정답은 (C)

17. If a 50-pound food package consists of individual 4-ounce packets, how many individual packets are contai ned in 4 tons of 50-pound packages? (Assume that all weights given exclude the weight of packaging material. 1 ton = 2,000 pounds; 1 pound = 16 ounces)

(A) 32,000 (B) 8,000 (C) 800 (D) 200 (E) 160

4tons ×2000 pounds ×16 ounces = 128,000 ounces

이것을 4-ounce로 나누면 그 값이 packets의 총 수입니다. 128,000 ÷ 4 = 32,000

⊞ 정답은 (A)

18. The cost of sending a package is 30 cents per ounce in addition to a basic fee of 5 dollars. If integer x represents the weight in ounces of a certain package, which of the following represents the cost, in dollars, of sending the package?

(A) $5x + 0.30$

(B) $(5 + x)0.30$

(C) $5 - 0.30x$

(D) $0.30x + 5$

(E) $0.70x + 5$

물건을 보내는데 기본요금이 $5에 ounce당 30cent씩 추가된다는 내용입니다.단위를 주의하여 문제를 해결해야 합니다.

Cent를 $단위로 고치면 30cent는 $0.3이 되죠…

⊞ 답은 (D)입니다.

19. An empty oil tanker was filled with oil at a uniform rate in t hours. What proportion of the tanker was filled during the first x hours if $x < t$?

(A) $\frac{x}{t}$ **(B)** $\frac{t}{x}$ **(C)** $\frac{x}{t-x}$ **(D)** $\frac{t-x}{t}$ **(E)** $\frac{t-x}{x}$

석유탱크가 일정한 속도로 t 시간 만에 채워 질 때 첫 x시간 동안에 채우지는 탱크의 비율을 구하라는 문제입니다.

탱크는 한 시간당 얼마 만큼식 채워질까요. $\frac{1}{t}$ 만큼씩 채워지죠.그래야만이 t시간이 지나야지 전체가 채워지겠죠.

⊞ 정답은 (A)

20. If a basketball team scores an average (arithmetic mean) of x points per game for n games and then scores y points in its next game, what is the team's average score for the $n+1$ games?

(A) $\dfrac{nx+y}{n+1}$

(B) $x+\dfrac{y}{n+1}$

(C) $x+\dfrac{y}{n}$

(D) $\dfrac{n(x+y)}{n+1}$

(E) $\dfrac{x+ny}{n+1}$

N게임에서는 X points 평균득점 ; N게임 다음 경기 득점은 y. 아래 공식을 이용하면:

<*Average Problem*> 그룹 N_1의 average는 A_1이고, N_2의 평균은 A_2일 때,

Combined Average = $\dfrac{N_1 \cdot A_1 + N_2 \cdot A_2}{N_1 + N_2}$, 위의 문제를 왼쪽의 공식에 대입하면

정답은 (A)

21. If a train travels at a speed of k meters per second, how many kilometers will it travel in t minutes? (1 kilometer = 1,000 meters)

(A) $\dfrac{60kt}{1{,}000}$

(B) $\dfrac{60kt}{100}$

(C) $\dfrac{1{,}000kt}{60}$

(D) $6.000kt$

(E) $60{,}000kt$

Distance(거리) = Rate(속도) ´ Time(시간)

초당 k meters을 가는 기차가 t minutes 후 몇 kilometers을 가는지를 구하는 문제네요.

K meters을 1,000으로 나눈 후 다시 60을 곱해주면 정답을 구할 수 있네요.

정답은 (A)

22. Mason and Kathy, who both work in the evening wish to arrange for an evening off together. Each evening that Mason is off is followed by 3 evenings that he is a work, and each evening that Kathy is off is followed by 5 evenings that she is at work. If Mason will be off this evening, and Kathy will be off tomorrow evening, how many evenings must pass before they have an evening off together?

(A) 10 (B) 12 (C) 24 (D) 28

(E) So long as they continue this working pattern, they will never have the same evening off.

Mason 은 4일에 한 번, Kathy는 5에 한 번씩 쉰다는 의미입니다. 이 문제는 실제로 그림을 그려 가며 따져야 하는 문제입니다. 가끔 이러한 문제도 출제 됩니다.

▣ 정답은 (E)

23. On a certain 10-question test, each question after the first question is worth 2 points more than the previous question. If the greatest number of points that can be scored on the test is 100, how many points is the eighth question worth?

(A) 9 (B) 14 (C) 15 (D) 19 (E) 33

10문제로 이루어진 test에서 각 문제에 대한 점수는 1번 문제 이후로는 앞의 문제 보다 2점씩 올라 가며 문제를 풀어서 최고로 얻을 수 있는 점수가 100점일 때 8번 문제의 점수를 물어 보고 있다.

10S(처음 값) + (2 + 4 + 6 + ··· + 18) = 100 ⇒ S = 1(초기값)에 2×7 = 14을 더하면 15.

▣ 정답은 (C)

24. A certain car dealership sells only full-size and mid-size cars. One of its sales representatives receives an annual salary of $15,000. He also receives a commission of $800 for each full-size car he sells and $500 for each midsize car he sells. What is the least number of cars he must sell in a year to receive total annual earnings of exactly $25,000?

(A) 7 (B) 12 (C) 13 (D) 14 (E) 17

$ 15,000은 판매량과 상관 없이 받는 연봉이기 때문에 우선 $25,000에서 빼어주고 남게 되는 $10,000만큼을 commission으로 받으면 됩니다.

이제 자동차 판매량을 가장 작게 하려면 될 수록 대당 commission이 높은 a full size car을 많이 판매하면 되겠죠. $ 800x + $ 500y = $10,000을 만족하는 값을 구하면 X가 12일 때가 $9,600이 되므로 정답입니다. .

▣ 정답은 (D)

25. A school supply store sells only one kind of desk and one kind of chair, at a uniform cost per desk or per chair. If the total cost of 3 desks and 1 chair is twice that of 1 desk and 3 chairs then the total cost of 4 desks and 1 chair is how many times that of 1 desk and 4 chairs?

(A) 5 **(B)** 3 **(C)** $\frac{8}{3}$ **(D)** $\frac{5}{2}$ **(E)** $\frac{7}{3}$

3Desk + Chair = 2(D+3C) ⇒ D = 5C

4D + C = x (D+4C) ⇒ 여기에 D = 5C을 대입하면 21C = x (9C)⇒ x = 7/3

■ 정답은 (E)

26. A merchant paid $300 for a shipment of x identical calculators. The merchant used 2 of the calculators as demonstrators and sold each of the others for $5 more than the average (arithmetic mean) cost of the x calculators. If the total revenue from the sale of the calculators was $120 more than the cost of the shipment, how many calculators were in the shipment?

(A) 24 **(B)** 25 **(C)** 26 **(D)** 28 **(E)** 30

Total revenue(x -2개의 판매 revenues에서 2개는 demonstrators로 사용했기 때문에 빼줌)

= $120 + the cost of shipment ($300) ⇒

Total Revenue $(\frac{300}{x}+\$5)\times(x-2)-\frac{300}{x}\times 2$ – the cost of shipment ($300) = $120

위 식을 정리하면 $x^2-26x-240 \Rightarrow x=30$

■ 정답은 (E)

27. A manufacturer can save x dollars per unit in production costs by overproducing in certain seasons. If storage costs for the excess are y dollars per unit per day $(x>y)$, which of the following expresses the maximum number of days that n excess units can be stored before the storage costs exceed the savings on the excess units?

(A) $x-y$ **(B)** $(x-y)n$ **(C)** $\frac{x}{y}$ **(D)** $\frac{xn}{y}$ **(E)** $\frac{x}{yn}$

D를 보관하는 날이라고 하면,

$nx = ynD \Rightarrow$ D = $\frac{x}{y}$

■ 정답은 (C)

28. A certain disability plan pays monthly benefits of 60 percent of the first $2,000 of monthly salary plus 40 percent of any portion in excess of $2,000 – the total monthly benefit not to exceed $2,500. What is the smallest monthly salary that will yield the maximum monthly benefit under this plan?

(A) $5,750 (B) $5,250 (C) $4,500 (D) $3,250 (E) $2,200

$2,000이하인 급여에 대해서는 60%가 지급되기 때문에 $2,500에서 $1,200을 제외한 $1,300을 받기 위한 최소급여가 얼마인지를 계산하면 됩니다.

$ 1,300 ×(5/2)= $ 3,250

결국, $2,000 + $ 3,250 = $ 5,250

(함정) $3,250에 $2,000을 더하여 주는 것을 잊으면 안됩니다.

⊞ 정답은 (B)

29. One-fifth of the light switches produced by a certain factory are defective. Four-fifths of the defective switches are rejected and $\frac{1}{20}$ of the nondefective switches are rejected by mistake. If all the switches not rejected are sold, what percent of the switches sold by the factory are defective?

(A) 4% (B) 5% (C) 6.25% (D) 11% (E) 16%

전체 생산량의 $\frac{1}{5}$가 불량품이며, 불량품의 $\frac{4}{5}$가 제거 되어지나 불량품이 아닌 제품의 $\frac{1}{20}$이 또한 실수로 제거 되어진다고 합니다.이럴 때 판매 되어지는 제품 중 불량품의 비율을 구하라는 문제입니다.

- 불량품이며 제거되어지는 제품의 비율(defective and rejected) :

  $\frac{1}{5}\times\frac{4}{5}=0.16$ (16%), 전체 생산량 중 20%($\frac{1}{5}$)가 불량품이라고 했기 때문에20% - 16% =4% 의 불량품이 제거되지 않는다는 의미입니다.

- 불량품이 아니지만 제거되어지는 제품의 비율(not defective and rejected) :

  $\frac{4}{5}\times\frac{1}{20}=0.04$, 전체 생산량 중 불량품이 아닌 4%의 제품이 불량품으로 오인되어 판매되지 않습니다. 두 결과를 합치면 전체 생산량 중 불량품 16%, 정상제품 4%가 제거 되어 총생산량의 80%가 판매되어지고 이중 불량품 4%가 섞이어 들어갑니다.

  포인트는 팔린 물건 중에 몇 percent 가 defective인가를 묻는 문제죠. 공식을 정리하면:

  $$\frac{part}{whole}=\frac{4\%(defective\ \&\ sold)}{(80\%-4\%)+4\%}=5\%$$

⊞ 정답은 (B)입니다.

30. In Company X, 30 percent of the employees live over ten miles from work and 60 percent of the employees who live over ten miles from work are in car pools. If 40 percent of the employees of Company X are in car pools, what percent of the employees of Company X live ten miles or less from work and are in car pools?

(A) 12% (B) 20% (C) 22% (D) 28% (E) 32%

	10 miles 이상	10 miles 이하	Total
Car pool	30% ´ 60%	40 – 18 = 22%	40%
Not Car pool			
	30%		

문제는 10miles이하이고 car pool을 하는 사람의 percent을 구하는 것입니다. 위의 그림 참고!

▣ 정답은 (C)

31. A garment order consists of jackets costing $36 each and shirts costing $26 each. If the total cost of the order is $1,200, and if the average (arithmetic mean) cost per garment is $30, how many more shirts than jackets are in the order?

(A) 32 (B) 22 (C) 18 (D) 13 (E) 8

jacket의 가격은 $36, shirt의 가격은 $26이며 평균비용은 $30이라면, jacket을 2벌 구입할 때 shirt를 3벌 구입했다는 것이다. 그래야 가중 평균을 구할 때 평균비용이 $30이 되어진다. 이러한 사실을 이용하여 다음과 같이 문제를 해결할 수 있다.

$36×N + $26×1.5N= $1,200 ⇒ N(jackets) = 16개, 따라서 shirts는 16×1.5 =24개입니다.

24개 – 16개 = 8개

▣ 정답은 (E)

32. The front wheels of a toy truck are 4 inches in circumference. The back wheels are 7 inches in circumference. If the truck travels in a straight line without slippage, how many inches will the truck have traveled when the front wheels have made 12 more revolutions than the back wheels?

(A) 112 (B) 64 (C) 48 (D) 36 (E) 28

앞 바퀴의 원주가 4 inches, 뒤 바퀴의 원주가 7inches 일 때 앞 바퀴가 뒤 바퀴보다 12바퀴 더 회전 했을 때 움직인 거리를 물어 보고 있습니다.

이번 문제는 마치 공배수를 구해 주는 문제와 같은 논리로 해결하면 됩니다. 두 바퀴의 원주가 서로 다르지만 움직인 거리는 같게 됩니다. 움직인 거리가 일치 하려면 뒤 바퀴가 4바퀴 (28inches) 돌 때 앞 바퀴는 7바퀴(28inches) 돌아야 합니다. 결국 3바퀴를 더 돌아야 됩니

다. 이러한 결과로 28 inches씩 갈 때 앞 바퀴는 뒤 바퀴 보다 3 바퀴를 더 돌아야 한다는 사실을 알았습니다. 문제는 앞 바퀴가 12 바퀴를 더 돌면, 즉 3 revolution : 28 inches = 12 revolution : X 이 식을 정리하면 X = 112 입니다.

⊞ 정답은 (A)입니다.

33. A club sold an average (arithmetic mean) of 92 raffle tickets per member. Among the female members, the average number sold was 84, and among the male members, the average number sold was 96. What was the ratio of the number of male members to the number of female members in the club?

(A) 1 : 1 (B) 1 : 2 (C) 1 : 3 (D) 2 : 1 (E) 3 : 1

전체 평균으로 회원1명이 92개의 ticket을 팔았고, 회원 중 남성은 96장 여성은 84장 팔았다면 남성은 1명당 평균보다 4장씩 더 팔았고 여성은 8씩을 덜 팔았다. 이러한 상황에서 평균을 맞추어 주기 위해서는 여성 1명당 남성 2명이 ticket을 팔아야 평균과 일치하게 됩니다.

⊞ 정답은 (D)

34. A team won 40 percent of the 15 games it has already played. If the team were to win 75 percent of its remaining games, it will have won 60 percent of all its games. How many remaining games are there?

(A) 12 (B) 20 (C) 24 (D) 30 (E) 45

이미 15 경기 중에서6경기를 승리하여 40%의 승률을 기록하고 있으며, 나머지 경기에서 75%의 승률을 기록할 때 전체 경기의 승률이 60%가 된다고 합니다. 40%의 승률을 기록하고 있는 15경기에서 승률이 평균인 60%가 되기 위해서는 3경기를 더 이겼어야 됩니다. 결국 15경기 이외의 경기에서(n) 승률이 75%가 되면 이는 총경기에 대한 평균 승률 60%보다 15%만큼 상회하고 있는 것이며 15%는 3경기에서의 승리를 의미하는 것이다.

$$n \times \frac{15}{100} = 3 \text{(경기)} \quad \Rightarrow \quad n = 20$$

해설 2 또 다른 방법은 n을 남은 경기수라 가정하고 다음과 같이 식을 만들 수 있죠:

6 games + $0.75(n)$ = $(15 + n)0.6$, 이 식을 정리하면 $n = 20$

⊞ 정답은 (B)입니다.

35. In a quality control process it has been determined that all of the engines that fail inspection are faulty, but approximately $\frac{1}{6}$ of the faulty engines pass inspection. If, in a group of 1,000 engines, 100 fail inspection, approximately how many faulty engines pass inspection?

(A) 16 (B) 20 (C) 50 (D) 70 (E) 120

불량 엔진의 5/6이 검사를 통과하지 못했으며 그 개수는 100개이다.
불량엔진개수가 F개라면,
$F \times (5/6) = 100$, 전체 불량 엔진 개수는 120개이다.
⊞ 정답은 (B)

36. If an organization were to sell n tickets for a theater production, the total revenue from ticket sales would be 20 percent greater than the total costs of the production. If the organization actually sold all but 5 percent of the n tickets, the total revenue from ticket sales was what percent greater than the total costs of the production?

(A) 4% (B) 10% (C) 14% (D) 15% (E) 18%

ticket의 가격을 P , cost를 C라고 하면,
$P \times N = 1.2C$, 그러나 ticket이 95%만 판매 되었기 때문에 다음과 같다.
$0.95 \times (N \times P) = 0.95 \times 1.2C = 1.14C$
⊞ 정답은 (C)

37. Jeff drove to work from his home averaging 40 miles per hour, and was 12 minutes late. The next day he left home for work at the same time, took the same route, averaging 48 miles per hour, and was 7 minutes late. How far in miles is it from Jeff's home to his work?

(A) 20.0 (B) 24.5 (C) 30.0 (D) 37.5 (E) 40.0

속도는 40miles 에서 48miles 로 변화하여 20% 증가하였으며, 시간은 5분이 단축되었습니다.
출근거리를 D 라고 하면 다음의 식이 성립합니다.
D = (속도) × (주행시간),
출근거리는 변화하지 않고 속도와 시간만 변화한 것이기 때문에 또한 다음의 식이 성립합니다. $D = S \times H = 1.2S \times xH$
위의 식이 성립하기 위해서는 48miles로 달릴 때 소요되는 시간은 $\frac{5}{6}H$ 가 되어야 하고, 이

로써 발생하는 시간의 차이 $\frac{1}{6}H$ 는 40miles로 출근했을 때와 48miles로 출근했을 때 발생하는 시간의 차이 5분이 되는 것 입니다. 결국 40 mile의 속도로 30분간 총20mile의 거리를 달린 것입니다.

해설 2 도착하고 싶은 시간을 T라 가정하고 12분과 7분 늦었다는 것은 T에 더해주는 식으로 유도하면: 40 miles(T + 12 minutes) = 48miles(T+7minutes)

이 식을 정리하면 T= 18 minutes을 구할 수 있네요. 아무 곳에 T를 대입해서 풀면 거리를 구할 수 있죠. 단 여기서는 단위는 hours 이므로 minutes을 hours로 바꿔야겠네요!!!

⊞ 정답은 (A)입니다.

38. If a motorist had driven 1 hour longer on a certain day and at an average rate of 5 miles per hour faster, he would have covered 70 more miles than he actually did. How many more miles would he have covered than he actually did if he had driven 2 hours longer and at an average rate of 10 miles per hour faster on that day?

(A) 100 (B) 120 (C) 140 (D) 150 (E) 160

평균 5 miles 더 빨리 그리고 주행 시간을 한 시간 증가하면 70miles를 더 가게 된다고 합니다. 실제로 운행한 시간을 h, 실제 속도를 s 라 하면 다음 식이 성립합니다: $h \times s$ = D라 가정하면 ⇨ $(s+5)\times(1\times h)=D+70$ (miles) $h \times s$ = D 이므로 이 식을 정리하면

S + 5 h = 65을 구할 수 있다. 그 다음은 10miles 더 빨리 그리고 2시간 더 주행한다면,

$(s+10)\times(2\times h)=D+X$, 여기서 구할 값은 X이고, ① $h \times s$ = D 이고, ② S + 5 h = 65

①과 ②을 이용해 위의 식을 정리하면 X 값을 구할 수 있습니다.

⊞ 정답은 (D)입니다.

39. When a certain stretch of highway was rebuilt and straightened, the distance along the stretch was decreased by 20 percent and the speed limit was increased by 25 percent. By what percent was the driving time along this stretch reduced for a person who always drives at the speed limit?

(A) 16% (B) 36% (C) $37\frac{1}{2}$% (D) 45% (E) $56\frac{1}{4}$%

거리(distance) = 속도(speed) × 시간(time), 시간 = 거리 / 속도 = 0.8거리 / 5/4 속도

⊞ 정답은 (B)

40. Solution Y is 30 percent liquid X and 70 percent water. If 2 kilograms of water evaporate from 8 kilograms of solution Y and 2 kilograms of solution Y are added to the remaining 6 kilograms of liquid, what percent of this new solution is liquid X ?

(A) 30% (B) $33\frac{1}{3}\%$ (C) $37\frac{1}{2}\%$ (D) 40% (E) 50%

원래 용액 Y의 구성: liquid 30%, water 70% 구성됨

⇨(1) 8 kilograms의 Y 용액에서 물만 $2Kg$ 증발된 후 용액Y:

Liquid X 의 질량 : $8(Kg)\times 0.3 = 2.4(Kg)$ (변하지 않음)

물의 질량 : $5.6Kg(=8kg\times 70\%)-2Kg = 3.6Kg$ (2 Kg 증발)

⇨(2) 첨부할 $2Kg$ solution Y의 구성

Liquid X 의 질량 : $2(Kg)\times 0.3 = 0.6(Kg)$

물의 질량 : $2(Kg)\times 0.7 = 1.4(Kg)$

⇨(3) 남아있는 6 kilograms (8kilograms에서 물이 2 kilograms증발)의 용액 Y에 새로운 2 kilograms Y를 혼합한 후(8 kilograms)

Liquid X 의 질량 : $2.4(Kg)+0.6(Kg) = 3.0(Kg)$

물의 질량 : $3.6(Kg)+1.4(Kg) = 5.0(Kg)$

Liquid X의 percent = $\frac{3.0}{8.0}\times 100 = \frac{75}{2}$

정답은 (C)입니다.

41. How many gallons of water must be mixed with 1 gallon of a 15-percent salt solution to obtain a 10-percent salt solution?

(A) 0.50 (B) 0.67 (C) 1.00 (D) 1.50 (E) 2.00

현재 용액 : 1 gallon, 그 중에 소금은 0.15 gallon

희망 용액 : 소금 10%을 만들려면 0.15 gallon이 전체 용액 1.5gallon의 10%를 차지하면 되므로 필요한 용액은 0.50이 된다.

정답은 (A)

42. The seating chart of an airplane shown 30 rows of seats. Each row has 3 seats on each side of the center aisle, and one of the seats on each side is a window seat. The view from the window seats in 5 of the rows is obscured by the wings of the airplane. If the first person to be assigned a seat is assigned a window seat and the window seat is assigned randomly, what is the probability that the person will get a seat with an unobscured view?

(A) $\frac{1}{6}$ **(B)** $\frac{1}{3}$ **(C)** $\frac{2}{3}$ **(D)** $\frac{5}{6}$ **(E)** $\frac{17}{18}$

총 좌석 수 : 180개 (한 줄에 6 좌석씩 30 줄)
비행기 날개에 의해 경치가 보이지 않는 좌석 수 : 30 좌석
경치가 보이는 좌석에 앉게 될 확률 : 150 / 180

정답은 (C)

43. One week a certain truck rental lot had a total of 20 trucks, all of which were on the lot Monday morning. If 50 percent of the trucks that were rented out during the week were returned to the lot on or before Saturday morning of that week, and if there were at least 12 trucks on the lot that Saturday morning, what is the greatest number of different trucks that could have been rented out during the week?

(A) 18 (B) 16 (C) 12 (D) 8 (E) 4

총 20대의 truck이 월요일에 자동차 rental회사의 주차장에 있고 빌려 준 차의 50%가 토요일 아침 전까지 회수되어 토요일 아침에 최소 12대의 truck이 있을 때 주중에 대여 되었던 차의 수를 묻고 있는 문제입니다.
토요일 아침 전까지 대여 되었던 차의 50%가 회수되는 것이므로 빌려준 자동차의 대수는 우선 짝수이어야 합니다.
만약 18대가 주중에 대여 되었다면 토요일 아침까지 9대가 반납되어 질 것이고 대여되지 않고 주차장에 있던 차 2대와 함께 11대의 차가 토요일 아침에 있어야 합니다. 그러므로 18은 답이 아닙니다. 16대가 대여 되었다면 8개가 반납되어지고 주차장에 4대의 차가 있었을 것이므로 토요일 아침에 총12대의 차가 주차장에 있게 됩니다.

정답은 (B)

44. A car traveled 462 miles per tankful of gasoline on the highway and 336 miles per tankful of gasoline in the city. If the car traveled 6 fewer miles per gallon in the city than on the highway, how many miles per gallon did the car travel in the city?

(A) 14 (B) 16 (C) 21 (D) 22 (E) 27

고속도로에서 per gallon 당 가는 거리를 x라 하면: $\frac{462}{x} = \frac{336}{x-6} \Rightarrow x = 22$

따라서 시내에서의 per gallon당 가는 거리는 $22 - 6 = 16$

⊞ 정답은 (B)

45. On a 20-mile course Pat bicycled at an average rate of 30 miles per hour for the first 12 minutes and, without a break, ran the rest of the distance at an average rate of 8 miles per hour. How many minutes did Pat take to cover the entire course?

(A) 75 (B) 105 (C) 117 (D) 150 (E) 162

20mile의 거리를 처음 12분간은 30mile로, 나머지 거리는 8mile의 속도로 달렸을 때 20mile을 완주 하는데 소요된 시간을 물어 보고 있습니다.
12분은 1/5시간입니다. 30mile의 속도로 12분간 6mile을 달린 것이고 나머지 거리 14mile은 8mile의 속도로 달린 것 입니다. 14mile의 거리를 속도8mile로 나누어 주면 소요된 시간이 1(3/4)가 나옵니다. 12분과 1(3/4)시간 곧 105분을 더하여 주면 117분이 답이 됩니다.

⊞ 정답은 (C)

46. An investor bought n shares of Company X stock at \$75 per share. She sold 60 percent of the shares for \$120 per share and the rest at a later date for \$70 per share. If her gross profit on the sale of the n shares of stock was \$7,500, how many shares did she buy?

(A) 375 (B) 300 (C) 100 (D) 95 (E) 75

Company X 회사의 주식을 주당 \$75에 n주 매수하여 60%는 \$120에 나머지는 \$70에 매도하였을 때 수익이 \$7,500이였을 때 구입한 주식의 수를 물어 보고 있습니다. 연립식을 구하여 문제를 풀 수 있습니다.

$\$45 \times (3/5)n + \$5(2/5) = \$7,500$

⊞ 정답은 (B)

47. In 1982 a certain company had losses of $10,000 per month. In the first three months of 1983, this company had gains of $4,000 per month. On the average, what would the company need to gain per month in the remainder of 1983 in order to break even over this two-year period?

(A) $9,000 (B) $10,800 (C) $12,000 (D) $13,500 (E) $18,000

1982년에 매 달 $10,000의 손실이 발생했고 1983년 1/4분기 동안에 매달 $4,000씩 수익이 발생 했을 때 '82,'83년 두 해 동안에 break even하기 위하여 '83년 나머지 기간 동안에 얼마만큼의 수익이 발생해야 하는지를 물어 보고 있다.

'82년도 총손실은 $ 120,000이고 '83년도 1/4분기 총수익 $12,000이므로 break even 하기 위해서는 나머지 기간 동안에 매달 $108,000/8(달) 만큼의 수익을 오려야 한다.

⊞ 정답은 (C)

48. An author received $0.80 in royalties for each of the first 100,000 copies of her book sold, and $0.60 in royalties for each additional copy sold. If she received a total of $260,000 in royalties, how many copies of her book were sold?

(A) 130,000 (B) 300,000 (C) 380,000 (D) 400,000 (E) 420,000

{ $260,000 – ($0.8×100,000) } / 0.6 = 30,000 , 3만 권의 책은 10,000권이 팔린 후 추가로 팔린 책임을 주의

⊞ 정답은 (D)

49. For each hour worked in excess of 40 hours per week, a mechanic is paid $1\frac{1}{2}$ times her regular rate of $12 per hour. Her gross pay for a week in which she works 52 hours is equal to her pay at the regular rate for how many hours?

(A) 58 (B) 64 (C) 66 (D) 70 (E) 78

40시간을 초과하는 근무시간에 대해서는 시간당 $12의 급료에 1(1/2)배를 지불할 때, 52시간을 근무하였을 때 받는 급료는 초과시간근무를 하지 않고 몇 시간을 일할 때 받는 급료와 같은 지를 물어 보고 있습니다.

초과근무에 대하여는 1(1/2)배의 급료를 받고 있기 때문에 정상근무의 2/3시간만을 일하고도 정상근무시간에 받는 급료를 받을 수 있습니다. 그러므로 초과시간 근무 1시간은 정상근무시간의 3/2배인 것입니다.

문제에서 12시간을 초과근무 하였기 때문에 이를 정상근무시간으로 환산하면 18시간이 됩니다. 이 문제의 핵심은 시간당 급료 $12를 계산식에 연관 시키지 않고 문제를 풀어 시간을 단축 하는 것입니다.

⊞ 정답은 (A)

50. Fifty percent of the subscribers to newspaper X are corporate managers and of these, 30 percent are in the financial field. If 40 percent of the subscribers who are corporate managers in the financial field are money managers, how many of the newspaper's 25,000 subscribers are corporate money managers in the financial field?

(A) 1,500 (B) 3,000 (C) 3,750 (D) 7,500 (E) 8,750

50% 구독자가 corporate manager이며, 이들 중 30%가 finance 분야에서 일한다고 한다. finance 분야에서 일하는 corporate manager중 40%가 money manager일 경우, 25,000명의 구독자 중 finance 분야에서 일하는 corporate money manager는 몇 명인가를 물어 보고 있다.

Finance 분야에서 일하는 Corporate manager 의 비율: $50\% \times 30\ \%$

finance 분야에서 일하는 corporate money manager 의 비율: $50\% \times 30\ \% \times 40\%$

따라서 $25{,}000 \times 50\% \times 30\ \% \times 40\% = 1{,}500$

▣ 정답은 (A)

51. Reggie had to type 90 letters. During the first day he typed $\frac{1}{3}$ of the letters, and during the second day he typed $\frac{2}{5}$ of the remaining letters. How many letters were still untyped at the end of the second day?

(A) 36 (B) 32 (C) 24 (D) 18 (E) 12

첫 번째 날 : $(1/3) \times 90$

두 번째 날 : $60 \times (2/5)$

마지막 날 : $90 - (30+24) = 36$

▣ 정답은 (A)

52. One karat signifies that $\frac{1}{24}$ of an alloy is pure gold. If a certain ring is 14-karat gold, approximately what percent of the alloy composing the ring is <u>not</u> gold?

(A) 14% (B) 24% (C) 42% (D) 55% (E) 58%

one-karat은 혼합물의 1/24가 순금임을 의미

14-karat gold은 혼합물의 14/24가 순금.

▣ 정답은 (C)

53. **At a certain pizzeria, $\frac{1}{8}$ of the pizzas sold in one week were mushroom and $\frac{1}{3}$ of the remaining pizzas sold were pepperoni. If n of the pizzas sold were pepperoni, how many were mushroom?**

(A) $\frac{3}{8}n$ **(B)** $\frac{3}{7}n$ **(C)** $\frac{7}{16}n$ **(D)** $\frac{7}{8}n$ **(E)** $3n$

판매된 피자의 총량을 P라 하면,

Mushroom: 1/8P

Pepperoni: 7/8P × 1/3 = 7/24P = n

1/8P = 7/24P × 3/7 = 3/7n

정답은 (B)

54. **Beth received $\frac{3}{10}$ of the votes cast in a certain election. What fraction of the other votes cast would she have needed in order to have received $\frac{1}{2}$ of the votes cast?**

(A) $\frac{1}{5}$ **(B)** $\frac{2}{7}$ **(C)** $\frac{3}{10}$ **(D)** $\frac{7}{20}$ **(E)** $\frac{1}{2}$

선거의 결과가 1/2가 되기 위해서는 2/10의 표가 더 필요합니다.

(7/10) × X = 2/10

정답은 (B)

55. **From January 1, 1980, to January 1, 1984, the number of employees of Company X declined by 700 per year. If the number of employees on January 1, 1984, was 80 percent of the number on January 1, 1980, how many employees di d the company have on January 1, 1984?**

(A) 2,800 (B) 3,500 (C) 11,200 (D) 16,800 (E) 17,500

80년도부터 84년까지 매년 700명씩 근로자가 감소하는 상황 하에서 84년도 근로자의 수가 80년도의 80%일 때 84년도 근로자의 수를 구하라는 문제입니다.

80년에서 84년까지 매년 700명씩 근로자가 감소 했기 때문에 총 2,800명의 근로자가 감소 했다는 사실을 알 수 있습니다. 또한 84년도의 총근로자가 80년도 근로자의 80%라고 했기 때문에 감소한 근로자 2,800명은 80년도에 고용되어 있던 근로자의 20%임을 알 수 있습니다 : 80년 전체 근로자 수 ⇨ 4년 후 ⇨ (80년 근로자 수) × 0.8(=80%), 즉 4년 동안 근자자 수

의 20% 가 줄어다는 의미네요.
결국 80년도에 고용되어 있던 근로자 수(x)는 식①과 같이 구할 수 있으며,
① $x \times 0.2 = 2{,}800 \Rightarrow$ X = 14,000명
84년도에 고용되어 있는 근로자의 수는 식②와 같이 구할 수 있습니다.
② $14{,}000 \times 0.8(80\%) = 11{,}200$
정답은 (C)입니다.

56. Both marble tiles and terra-cotta tiles are available in squares with 12-centimeter sides, but marble tiles cost x cents more per tile than terra-cotta tiles. How much more would it cost, in cents, to tile a rectangular floor 240 centimeters by 120 centimeters with marble tiles than with terra-cotta tiles?

(A) $200x$ **(B)** $360x$ **(C)** $720x$ **(D)** $2{,}400x$ **(E)** $28{,}800-144x$

(240 cm × 120 cm) / (12×12) = 200
직사각형의 마루를 장식하는데 200개의 타일이 필요하며 marble tile로 장식을 하기 위한 개당 가격이 terra-cotta tile의 가격보다 x cents 만큼 높기 때문에 정답은 (A)입니다.
정답은 (A)

57. If 6 machines ran at the same constant rate, they can complete a certain job in 8 hours. If only 5 of these machines run at this rate, how many more minutes will be required to complete the same job?

(A) 38 (B) 72 (C) 80 (D) 90 (E) 96

위의 문제는 다음의 공식(word problems 공식정리 참고!)을 이용하면 아주 쉬어집니다.
N1(6 machines) ×H1(8 hours) = N2(5 of these machines) × H2(?) : 동일한 일을 하므로 "="임
이 식을 정리하면 H2= 48/5이다. 따라서 48/5에서 8 hours 을 빼주면 5 machines 이 얼마만큼의 시간이 더 걸리는지 계산할 수 있다. 48/5 – 8 = 8/5 hours죠. Hours를 minutes으로 바꾸면
(8/5) × 60 = 96 minutes,
해설2 동일한 작업 속도로(at the same constant rate) 일하는 6대의 기계가 특정한 작업을 완수하는데 8시간의 시간이 소요될 때, 5개의 기계만이 작업을 수행할 때 추가적으로 소요되는 시간은(분단위로) 얼마인지를 물어 보고 있습니다.
6대의 기계가 작업을 완수하는데 걸리는 시간이 8시간이기 때문에 1시간 동안에 완수하는 작업의 양은 1/8이며, 한 대의 기계가 완수하는 일의 양은 1/48 입니다.
6대의 기계가 아닌 5대의 기계가 일할 경우에도 기계가 1시간에 완수하는 작업량인 1/48은 변하지 않습니다. 이제 5대의 기계가 일하기 때문에 1시간동안에 완수하는 작업량은 5/48이

며 작업을 완수하는데 소요되는 시간은 총 48/5시간입니다. 문제에서는 8시간보다 몇 분이 더 소요 되는지를 물어 보고 있기 때문에 다음의 계산을 해주어야 합니다.

$(8\times 60)-(\frac{48}{5}\times 60)=96$

정답은 (E)

58. An inlet pipe can fill an empty pool with water in 3 hours, and the pool's outlet pipe can empty a full pool in 4 hours. The water flows at constant rates through both pipes regardless of the water level in the pool. If both pipes were inadvertently left open, what fraction of the pool would be filled exactly 2 hours after water began to flow into the empty pool?

(A) $\frac{1}{12}$ **(B)** $\frac{1}{6}$ **(C)** $\frac{1}{4}$ **(D)** $\frac{1}{3}$ **(E)** $\frac{1}{2}$

물을 채우는 파이프로(an inlet pipe) 물을 채우는데 3시간 소요됩니다.

□ 1시간동안 an empty pool을 1/3이 채워 나갑니다.

물을 배출하는 파이프로(an outlet pipe) 물을 비우는데 4시간 소요됩니다

□ 1시간동안 a full pool을 1/4이 비워 나갑니다.

만약 물이 채워지는 동시에 물이 비워지는 경우 한 시간 동안에 채워지는 물의 양은 다음식에 따라 계산합니다.

$$\left(\frac{1}{3}\right)-\left(\frac{1}{4}\right)=\left(\frac{1}{12}\right)$$

한 시간이 지나면 1/3의 물이 채워지고, 1/4 물이 빠져 나가니까 남는 물의 양은 1/12죠.

문제에서는 두 시간동안에 채워지는 물의 양의 양을 물어 보고 있으므로 한 시간동안에 채워지는 물의 양에 2시간을 곱해 주어야 합니다 .⇒ (1/12)×2 = 1/6

정답은 (B)입니다

59. Working alone, R can complete a certain kind of job in 9 hours. R and S, working together at their respective rates, can complete one of these jobs in 6 hours. In how many hours can S, working alone, complete one of these jobs?

(A) 18 (B) 12 (C) 9 (D) 6 (E) 3

R : 9시간 걸려 작업 완수 1시간에 1/9작업 완수

R과 S가 동시에 같이 일할 경우 6시간 소요

R은 6시간 동안 작업량의 2/3를 완수 함으로 S가 나머지 1/3을 6시간 동안 완수한다.

결국 S는 시간당 1/18만큼씩 일을 한다.

정답은 (A)

60. **Machines $A, B,$ and C working together, but independently, at their respective constant rates can do a certain job in $1\frac{1}{2}$ hours. If A alone can do the job in 5 hours, and B alone can do the job in 3 hours, in how many hours can C alone do the job?**

(A) $1\frac{1}{3}$ **(B)** $2\frac{1}{7}$ **(C)** 3 **(D)** 5 **(E)** $7\frac{1}{2}$

(A+B+C) 1(1/2) hours 시간당 2/3만큼씩 작업량 완수
기계 A : 시간당 1/5만큼씩 작업량 완수 1(1/2)시간동안 3/10 완수
기계 B : 시간당 1/3만큼씩 작업량 완수 1(1/2)시간동안 1/2 완수
기계 C : 3/2시간동안 1/5 완수 하여야 함. 1(1/2)시간동안 3/10 완수
정답은 (E)

61. **Bell X rings once every 12 minutes, bell Y once every 14 minutes, and bell Z once every 15 minutes. If, during a given day, the three bells ring at exactly the same instant, how many minutes will elapse before the three bells next ring simultaneously?**

(A) 60 **(B)** 210 **(C)** 420 **(D)** 840 **(E)** 2,520

Bell X는 매 12분마다, Bell Y는 매 14분마다, Bell Z는 15분마다 울릴 때 3개의 벨이 동시에 울리고 다시 동시에 울리기 위해서는 몇 분의 시간이 흘러야 하는지를 물어 보고 있다. 최소공약수를 구하는 것과 같이 풀면 된다.
정답은 (C)

62. **How many bits of computer memory will be required to store the integer x, were $x = -\sqrt{810{,}000}$, if each digit requires 4 bits of memory and the sign of x requires 1 bit?**

(A) 25 **(B)** 24 **(C)** 17 **(D)** 13 **(E)** 12

자릿수를 표시하는 데는 4비트, 양수인지 음수인지를 표시하는 데는 1비트가 필요하다고 말하고 있습니다.
X = - 810,000 = - 900

정답은 (D)

63. Of the science books in a certain supply room, 50 are on botany, 65 are on zoology, 90 are on physics, 50 are on geology, and 110 are on chemistry. If science books are removed randomly from the supply room, how many must be removed to ensure that 80 of the books removed are on the same science?

(A) 81 (B) 159 (C) 166 (D) 285 (E) 324

supply room에 5종류의 책이 있고, supply room으로부터 임의로 책을 옮길 때 옮겨진 책 중 80권의 책이 같은 종류의 책이기 위해서는 몇 권의 책이 옮겨지면 되는지를 물어 보고있습니다.
일단 80권 미만인 분야의 책을 모두 옮기면, Botany 50권 ,zoology 65권, geology 50권 총 165권 입니다. 그 다음에 80권이 넘는 분야의 책들 중에서 physics 79권,chemistry 79권이 옮겨오면 supply room에는 physics와 chemistry에 관련된 책만이 남겨지게 됩니다. 여기서 한 권의 책을 옮기면 physics 또는 chemistry에 상관 없이 옮겨진 책 중 한 종류의 책이 정확히 80권이 되어집니다. 예를 들면 옮겨진 책이 physics일 경우 physics가 80권이 되며, 옮겨진 책이 chemistry일 경우 chemistry가 80권이 됩니다.
모두 정리하면 165권 + 79권 + 80권 = 324권

정답은 (E)

64. In a certain game, a player can accumulate points only by scoring either an X, which counts 3 points, or a Y, which counts 2 points. If a player scored 24 points in the game and t points were made by scoring X's how many different values could t have?

(A) Four
(B) Five
(C) Six
(D) Seven
(E) Eight

3 points와 2 points를 합하여 24가 되어야 하므로 $3X + 2Y = 24$
여기서 X로 취득한 점수는 언제나 짝수가(0, 6, 12, 18, 24) 되어야 한다. 왜냐하면 짝수와 짝수의 합이 항상 짝수 24가 되어야 하므로 $2Y$ 는 항상 짝수이므로 $3X$ 가 짝수가 되는 경우가 생각하면 됩니다. 즉 $X = 0, 2, 4, 6, 8$

정답은 (B)

65. An apartment building has 9 floors with $2n$ apartments per floor. If $\frac{1}{3}$ of the apartments are to have walls removed to form, in each case, one bigger apartment from two smaller ones, how many apartments will there be after the remodeling?

(A) $3n$ **(B)** $5n$ **(C)** $6n$ **(D)** $12n$ **(E)** $15n$

remodel 이전에 18n개의 방이 있는데 아파트 방의 1/3의 벽이 헐려 하나의 아파트가 되므로 18n의 1/3인 6n개의 아파트 방수가 3n개가 되어 진다는 의미입니다. 즉 18n – 3n = 15n

정답은 (E)

66. One-fourth of a solution that was 10 percent sugar by weight was replaced by a second solution, resulting in a solution that was 16 percent sugar by weight. The second solution was what percent sugar by weight?

(A) 34%
(B) 24%
(C) 22%
(D) 18%
(E) 8.5%

10% 설탕용액의 1/4이 다른 용액으로 대체 되어진 결과 16% 설탕용액이 되었을 때,다른 용액의 설탕 농도를 구하라는 문제.
이러한 문제는 무게를 설정하여 주고 풀면 쉽게 풀 수 있다. 만약 10%농도의 설탕 용액이 100g이었다면 포함되어진 설탕의 무게는 10g이었을 것이며 1/4를 제거 하면 설탕은 7.5g이 남게 된다. 이러한 상황 속에서 다른 용액 25g과 혼합 되었을 때 설탕의 농도가 16%가 되었다면 이제 100g속에 16g의 설탕이 있는 것이다. 이는 새로 유입된 설탕이 8.5g이었음을 가르쳐 주고 있다. 새로이 유입된 설탕용액의 양이 25g이었으므로 4를 곱하여 주어 100g 내에 포함되어 있을 설탕의 양을 구하면 농도를 알 수 있다.

정답은 (A)